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Impact of Green Finance on the Replacement of Fossil Fuels with Green Fuels – A Study

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ABSTRACT

This article is conducted under the title "The Impact of Green Finance on the Replacement of Fossil Fuels with Green Fuels", which the author pursued with the following objectives: Understanding the impacts of Green Finance on the Replacement of Fossil Fuels with Green Fuels, Understanding the actors, and challenges, of Green Finance, and Understanding the role of debt-for-environment swap projects (as a green finance product) in the replacement of fossil fuels with green fuels. In this research, a qualitative method has been used, and the article has used secondary data, including books, articles, newspapers, magazines, websites and government records. In this study, the author found that Green Finance plays an important role in replacing green fuels with fossil fuels. Green Finance achieves this goal through its instrument and products. In this study, all the actors involved in performing Green Finance activities have been introduced. These actors include Banks, Institutional Investors, International Financial Institutions and Regulatory Authorities and the Central Bank. The challenges proposed for Green Finance have been clarified. The article also clarified how Debt-for-Environmental Swaps, as a Green Finance product, can help replacement of fuels.

KEYWORDS: *Green finance, Fossil Fuel, Green fuel, Replacement, Debt, actor, Environmental, Energy, Green investment*

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1. INTRODUCTION

The increase in world population on the one hand and the limitation of natural resources on the other hand, has made environmental protection one of the most important issues in the world today. The point to consider is that the environment and the economy are not separate from each other and are affected by each other. In other words, these two categories are the cause and effect of each other. Any change inthe environment affects the economy, and vice versa; every economic decision also has positive and negative effects on the environment. Consumer awareness and moral growth have led to increasing global interest in environmental issues.

By definition, energy is the source through which daily activities are performed from the smallest human activity to the largest industrial activity. In addition to the advantages, some energies also have disadvantages, the most prominent of which is the destruction of the environment, which leads to the destruction of natural resources and increased air pollution. To avoid these dangers, we must use alternative energies that do not harm the environment or to mitigate such impact, for example, the solar energy, wave energy, geothermal energy, wind energy, nuclear energy and so on. This is where the replacement of natural resources comes into play to prevent energy losses and create positive growth. Green Finance is a new financial pattern which is discussed seriously to address the risks posed by resource consumption and offers a variety of strategies.

Green Finance is a new global phenomenon in finance that reflects the relationship between the business world and the environment. Green Finance focuses more on environmental benefits and more on the environmental protection industry, which increases the sustainability of economic growth. Green Finance is pursued through sustainable development by shifting sustainable investment away from the greenhouse gas industries, fossil fuels, and natural resources with more efficient technologies and new business models offered through Green Finance.

In this study, the researcher seeks to determine whether Green Finance has an impact on replacing fossil fuels with green fuels. Therefore, she will investigate a topic entitled "The Impact of Green Finance on the Replacement of Fossil Fuels with Green Fuels".

2. Objectives

- Understanding the impacts of green finance on the replacement of fossil fuels with green fuels
- Understanding the actors, and challenges of green finance
- Understanding the role of debt-for-environment swap projects (as a green finance product) in the replacement of fossil fuels with green fuels.

3. Material and Methods

This research uses a qualitative method, and use secondary data, including books, articles, research papers, newspapers, magazines, websites, and government records. Each topic studied requires a specific scope to provide research-related information to the reader. The scope of this research is limited to the study of issues such as the impact of Green Finance on the replacement of fossil fuels with green fuels and the identification of actors, and challenges of Green Finance, as well as the role of debt-for-environment swap projects in fuels replacement.

4. Review of Literature

In this part the objectives of article are explained as follow.

4.1. The Impacts of Green Finance on the Replacement of Fossil Fuels with Green Fuels

In the part the article tried to explain the Impacts of Green Finance on the Replacement of Fossil Fuels with Green Fuels.

4.1.1. Green Finance

Green finance is a new financial method that connects business and the environment in a way that considers the protection of the environment in the pursuit of economic benefits. One of the important features of this style is achieving sustainable economic growth, which invests in this style simultaneously has three advantages of economic growth, environment and financial industry.

Green finance is a new approach to low carbon and low consumption economies. And such approaches also lead to adaptation to climate change. This is an area for investors, lenders, producers and consumers. Green finance is different according to the participants in that each group is looking for green finance with its own motivation and goal, some are looking for profit and some are looking to protect the environment and some are both. Green Finance places great emphasis on environmental protection, and this goal is not seen in traditional financial activities.

4.1.2. Energy

Energy is the ability to do work and comes in many forms, including kinetic, thermal, electrical, chemical, etc. Solar energy provides all the energy from food. The chemical elements in the molecules that make up the components of living organisms are often combined through food networks to store energy, but much of the energy is also lost as heat in the environment.

Energy arises from chemical changes in the fuel, which are usually accompanied by a combination of oxygen which eventually becomes mechanical energy.

4.1.2.1. Fossil Fuels

The remains of plants and other organisms that had been buried beneath deep layers of sediment and rock for thousands of years have now become enriched materials used to make fuel. These fuels are called fossil fuels, which, as their name suggests, came from fossils of plants and animals thousands of years ago. Some of the fossil fuels, also called non-renewable fuels, are coal, oil, and natural gas.

4.1.2.2. Green Fuels

A type of fuel that results from the distillation of plants and animals and is much more environmentally friendly than fossil fuels is called green fuel or biofuel. The purpose of producing these fuels is to replace them with fossil fuels because the world is facing a shortage of fossil fuels.

4.1.3. Replacement of Fossil Fuels with Green Fuels by Green Finance

Green Finance aims to achieve sustainable development by creating a friendly relationship between the environment and the economy. A development that meets current needs without compromising the ability of future generations to meet their own needs. We may think that the focus of sustainable development is only the environment. But this kind of development goes beyond ecological boundaries. The term sustainability refers to four specific areas: human, community, economy, and environment.

One of the four goals of sustainable development is to improve human well-being by protecting natural resources such as land, air, water, minerals, and so on. Measures and programs are defined in the form of this approach to ensure that the needs of the current population are met without compromising the needs of future generations.

By addressing the disadvantages of fossil fuels, including its limitations and environmental pollution and the destruction of the right living space, Green Finance has occupied the minds of not only all environmental thinkers but also human, social and economic thinkers. Countries are trying to incorporate green fiscal policies into their development plans and make large investments in achieving sustainable development.

Difficulty in accessing private finance is one of the reasons for the slow growth of green projects. The future of clean energy is no longer about science and technology because it depends only on access to finance. Green Finance creates ways to finance a green project by designing worldwide projects. People, like other energy projects, consider green energy projects as infrastructure projects. Infrastructure projects are long-term and focused projects. There are two major barriers to green energy projects: "(a) lower rates of return compared to fossil fuel projects and (b) higher investment risk compared to fossil fuel projects".

Due to advances in technology, the costs of renewable energy technologies have dropped dramatically. For example, the price of solar energy, as well as the price of wind turbines, has fallen. Although this is good news, on the one hand, it forces investors to pause to see how prices on

the other side fall. And it becomes a kind of challenge to invest. Green Finance is trying to reduce the risks of green investment by unlocking the participation of financial institutions in these projects. Another Green Finance solution is to encourage Non-Bank Financial Institutions (NBFIs) such as pension funds or insurance companies to participate in green energy projects. Since investing in green energy is time-consuming and requires long-term investments, and the advantages of insurance and pension companies over banks are that these institutions pursue asset debt compliance and their resources are long-term (10, 20, or 40 years). That is why insurance and pension companies can invest in long-term projects (10-20 years) such as large hydropower plants and other green projects. Therefore, the establishment of bankruptcy funds and insurance companies in developing countries is useful to solve financial problems for green projects, including green energy.

Green Finance, through the financial tools at its disposal, tries to influence and control all destructive environmental factors. Because the use of fossil fuels increases carbon and is a danger to the environment. Therefore, Green Finance can use its products effectively to combat this destructive phenomenon.

Environmental Funds and Biodiversity Funds is one of the green financial products. The fund contributes to biodiversity conservation or indirect business activities to protect the region's biodiversity. The investments of this fund can have a major impact on green investment, which is a factor in reducing carbon in the environment. Another Green Finance product is Debt-for environment Swaps. This product creates a situation where developed countries instead ask developing countries to invest in green projects, and this is a good opportunity to invest in energy. It will be green.

4.2. Actors, the Challenges and Policy Recommendations of Green Finance

This part will discuss the actors and their challenges for Green Finance in detail.

4.2.1. Actors and Their Instruments

Green Finance developers include international financial institutions, banks, institutional investors, and regulatory authorities, and central banks.

A. Banks

The major share of world financial assets is related to the assets of the banking system. So these assets play a significant role in the international financial system. Hence, developing countries, as well as emerging markets, are taking great steps for sustainable development and green finance.

B. Institutional Investors

The largest share of trillion US dollars in green investment is made through institutional investment, which includes government wealth funds, pension funds, and insurance. But these funds and institutions face problems with investing in Green Finance because this type of investment is not included in the ranking criteria due to insufficient history.

C. International Financial Institutions

International financial institution such as IMFs[2] uses methods (play a leading role in testing new methods of financing sustainable development, funds raise private investment to invest in green projects, support sustainable development, unite green investors to reform global financial governance) to support green transformation.

D. Regulatory Authorities and the Central Bank

Central banks and other regulators support green transformation. In this way, they can contribute to the emergence of green transformation by creating rules and regulations in the financial markets.

4.2.2. General Challenges to Green Finance

One of the major challenges of Green Finance to achieve sustainable social and economic development is financial support from the public and private sectors. Because the public sector alone is not able to respond to green funding. To achieve the goals of Green Finance and achieve sustainability, several obstacles must be overcome. Several challenges have been identified as key priorities. Without addressing it, the gap between the needs of the green economy and investment opportunities cannot be bridged.

Mentioned challenges such as:

A. Environmental externalities.
B. The targets of sustainable growth are not sufficiently correlated with the priority of national investment policy.
C. Lack of a clear definition of green finance and lack of international standards.
D. There is no legal framework and law for green finance.
E. Information asymmetry in capital markets.
F. Lack of appropriate analytical tools to identify the risk of the Green Finance project.
G. Maturity mismatch.
H. Green washing.

4.3. Role of debt-for-environment swap projects (as a green finance product) in the replacement of fossil fuels with green fuels.

Debt-for-Environmental Swaps is a product of Green Finance, which provides the opportunity to attract capital in low-income countries. Through this opportunity they can meet environmental challenges and other policies and support green growth. When managing Debt swaps, all management issues and risks should be considered. Debt swaps mean that when creditors do not expect to recover the entire debt, they are less likely to accept it. This means that the creditor takes the debt from the debtor at a discount. In this case, the debtor party agrees to the creditor in an agreement to achieve certain goals in the amount of the reduction in local currency.

Debt swaps are typically done in the context of restructuring long-term, publicly guaranteed debts to formal bilateral creditors, such as members of the Paris Club. Debt-rich countries are eligible for Debt-for-Environmental Swaps (DFES) if they can persuade creditors to spend the debt on green activities if their repayment period ends. Therefore, financing domestic projects from debt will bring significant environmental benefits nationally and globally.

As experience shows, using Debt-for-Environmental Swap (DFES) is not an easy task. This requires the concerted efforts of the entire government and very careful preparations. These preparations include strong pre-feasibility studies, strong financial capacity, commitment to transparency and international credibility of the program, and domestic costs. This is attractive to the government. It is

[2]International Monetary Fund

safe to say that DFES is a realistic option for some countries and can play an important role in streamlining the environment in government policies and internal financing of the environment.

Negotiations of Debt-for-Environmental Swaps can take years; these negotiations can be expensive to get results. Negotiations between debtor and creditor countries over the scope of safeguards are particularly time-consuming. Delays increase the cost of operations, and negotiations may never be satisfactory, raising the question of whether it would be better to spend time and money on these transactions elsewhere.

Problems with the nature of Debt-for-Environmental Swaps are compounded by the inherent financial risks of such operations. These transactions are characterized by fixed risks associated with exchange rate fluctuations, inflation, and the possibility of financial or liquidity crises in debtor countries. Despite the potential side effects, these challenges can often be minimized. For example, setting an exchange rate for trading conditions before the actual payment date can ensure that costs are not affected by market fluctuations. To be successful in these exchanges, they need the proper planning and commitment of all parties to follow any agreement.

Most of these projects also have significant economic benefits for poor local communities that depend on environmental goods and services for sustainable livelihoods and growth. An example is the treatment of sewage from coastal villages in Georgia that go to the Black Sea. This sewage not only prevents the eutrophication of this sensitive water reservoir but also helps to increase the attractiveness of the area for tourists. Harvesting local renewable energy sources, such as rivers or biomass, is not only beneficial to the global climate but can also affect access to cheap and sustainable energy for local communities. It can also help them access the electricity and heat generated and get rid of the import of fossil fuels that they cannot afford. Thus, Debt-for-Environmental Swaps can be considered as a mechanism that supports a mix of domestic and foreign budgets to implement projects that support local economic development and poverty reduction.

5. Findings

This study was conducted on the impact of green finance on the replacement of fossil fuels with green fuels. The objectives of this research are: Understanding the impacts of Green Finance on the Replacement of Fossil Fuels with Green Fuels; Understanding the actors, and challenges of Green Finance; Understanding the role of debt-for-environment swap projects (as a green finance product) in the replacement of fossil fuels with green fuels. In this research, a qualitative method has been used, and the researcher has used secondary data, including books, articles, research articles, newspapers, magazines, websites, and government records.

Green finance is a new financial method that connects business and the environment in a way that considers the protection of the environment in the pursuit of economic benefits. One of the important features of this style is achieving sustainable economic growth, which invests in this style simultaneously has three advantages of economic growth, environment, and financial industry.

As a pro-environmental phenomenon, Green Finance seeks to control and find alternatives to all destructive environmental activities with its own tools and specific policies. Fossil fuel is one of the most destructive natural resources that the world economy is using today. Green Finance is replacing fossil fuels with green fuels to reduce carbon risks by implementing green policies and using the green economy approach.

By completing this research, the researcher concluded that green finance has a major role in replacing fossil fuels with green fuels. There are various actors in Green Finance who try to prevent environmental degradation by pursuing certain policies. In this study, it became clear that the proposed policies are being implemented by Green Finance actors to further develop Green Finance and prevent environmental degradation. And that Debt-for-Environmental swaps play a major role in encouraging countries to invest in the green sector, especially in the green fuel sector.

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